

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 15, 2005

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending July 15, 2005

A. Highly Enriched Uranium Materials Facility. The BWXT construction contractor continues facility concrete placement. The foundation slab for the mechanical equipment area has been completed and forms are being erected for the first wall placement now expected to occur next week. Concrete placements for the main storage area foundation slab are scheduled to begin in late-July. As previously noted (see 5/27/05 site rep. report), a soil-structure interaction re-analysis was being performed to confirm that design assumptions are valid for a main storage area wall reconfiguration. Although not yet formally communicated to YSO, BWXT personnel noted that the analysis has been completed and confirms the design assumptions.

B. Uranium Processing Facility. As part of conceptual design efforts, BWXT conducted a workshop focused on developing a lay-out of the various functions and processes within the facility. Conceptual design work is expected to be completed by the end of August to support conduct of YSO and other independent reviews in September and October.

C. Oxide Conversion Facility. Earlier this week, YSO approved the proposed Justification for Continued Operations and safety basis changes to resolve the hydrogen fluoride (HF) detector set point issue noted last week. Resumption of HF system testing has been delayed, however, to resolve concerns raised by YSO on facility configuration management. During prior troubleshooting of the dock scrubber flow instrument, BWXT noted that the instrument was not grounded in accordance with the drawing. Discussions with the vendor confirmed that the instrument was not grounded properly. A subsequent walkdown of two safety-significant HF detectors identified an additional installation discrepancy. In response to these issues, BWXT plans to walkdown additional safety-significant systems/equipment to verify proper installation.

D. Saltless Direct Oxide Reduction. BWXT continues to develop the Saltless Direct Oxide Reduction (SDOR) technology to replace oxide conversion (using HF) and reduction processes in producing enriched uranium metal buttons. Prior SDOR prototype testing resulted in an explosion and fire in a glovebox (see 4/18/03, 4/25/03 and 5/2/03 site rep. reports). As reported on November 24th, lessons learned from this event are being factored into the prototype design including a redesigned oxide dissolution system and prohibition of sealed containers. During the past month, BWXT completed testing of a mockup oxide dissolution system using surrogate material to check flow characteristics. This week, the site rep. observed portions of a Hazard and Operability analysis of the oxide dissolution system. A report is being completed. Construction of the prototype dissolution system in the engineering development building is to be completed by September and testing with depleted uranium is expected to commence in late-2005 following readiness reviews.

E. Chip Oxidation Operation. This week, BWXT began their Readiness Assessment for conducting the test plan for the chip oxidation vessel (see last week's site rep. report). Field observations were conducted on Thursday. As of Friday, potential findings included procedure issues, safety system grading criteria and dry vacuum HEPA filter functionality. The team plans to conclude their review early next week.